

Customer No.: 31561  
Docket No.: 13605-US-PA  
Application No.: 10/711,678

**In The Claims:**

**Claim 1 (Previously presented)** A patterning method, comprising:  
providing a substrate having a film formed over thereon;  
forming a photoresist layer over the film;  
exposing and developing the photoresist layer to form a patterned photoresist layer; and  
etching the film by performing an anisotropic plasma etching process with a power applied at one electrode in a range of about 150W to about 300W for generating a field using the patterned photoresist layer as an etching mask at a temperature range of about -50°C to about 50°C.

**Claim 2 (Original)** The patterning method of claim 1, wherein the temperature range is between about -30°C and about 30°C.

**Claim 3 (Original)** The patterning method of claim 1, wherein the temperature range is controlled via a susceptor positioned below the substrate.

**Claim 4 (Canceled)**

**Claim 5 (Previously presented)** The patterning method of claim 1, wherein the anisotropic plasma etching process is performed by directing an ionized plasma via the field.

**Claim 6 (Original)** The patterning method of claim 5, wherein the ionized plasma is formed by ionizing a plasma source comprising at least one inert gas selected from a group consisting of helium (He), neon (Ne), argon (Ar), krypton (Kr) and xenon (Xe).

**Claim 7 (Original)** The patterning method of claim 5, wherein a flow rate of the ionized plasma is in a range of about 20sccm to about 200sccm.

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**Claim 8 (Original)** The patterning method of claim 6, wherein the plasma source further comprises an external plasma source.

**Claim 9 (Original)** The patterning method of claim 8, wherein the external plasma source comprises CF<sub>4</sub>:CHF<sub>3</sub>, CF<sub>4</sub>:CH<sub>2</sub>F<sub>2</sub>, C<sub>2</sub>F<sub>6</sub>:CHF<sub>3</sub> or C<sub>2</sub>F<sub>6</sub>:CH<sub>2</sub>F<sub>2</sub>.

**Claim 10 (Original)** The patterning method of claim 9, wherein a gas flow ratio of CF<sub>4</sub> to CHF<sub>3</sub> of the CF<sub>4</sub>:CHF<sub>3</sub>, a gas flow ratio of CF<sub>4</sub> to CH<sub>2</sub>F<sub>2</sub> of the CF<sub>4</sub>:CH<sub>2</sub>F<sub>2</sub>, a gas flow ratio of C<sub>2</sub>F<sub>6</sub> to CHF<sub>3</sub> of the C<sub>2</sub>F<sub>6</sub>:CHF<sub>3</sub>, or a gas flow ratio of C<sub>2</sub>F<sub>6</sub> to CHF<sub>3</sub> of the C<sub>2</sub>F<sub>6</sub>:CHF<sub>3</sub> is larger than 1.

**Claim 11 (Previously presented)** The patterning method of claim 1, wherein the field comprises an electric field or a magnetic field.

**Claim 12 (Canceled)**

**Claim 13 (Original)** The patterning method of claim 1, wherein a thickness of the patterned photoresist layer is in a range of about 200nm to about 500nm.

**Claim 14 (Original)** The patterning method of claim 1, wherein the photoresist layer comprises a positive photoresist layer or a negative photoresist layer.

**Claim 15 (Original)** The patterning method of claim 1, wherein the film comprises a single layer or multiple layers.

**Claim 16 (Original)** The patterning method of claim 1, wherein the film comprises a dielectric layer, an inter-metal dielectric (IMD) layer or an inter-layer dielectric (ILD) layer.

**Claim 17 (Original)** The patterning method of claim 1, wherein the film comprises an oxide layer, a nitride layer, a poly-silicon layer or a single crystal silicon layer.

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**Claim 18 (Original)** The patterning method of claim 1, wherein the patterning method is performed to form a trench structure, a contact structure or a via structure in the film.

**Claim 19 (Original)** The patterning method of claim 17, wherein the trench structure comprises a shallow trench isolation (STI) structure.

**Claim 20 (Currently amended)** A patterning method, comprising:  
providing a substrate having a film formed over thereon;  
forming a photoresist layer over the film;  
exposing and developing the photoresist layer to form a patterned photoresist layer; and  
using the patterned photoresist layer as an etching mask, etching the film by performing an anisotropic plasma etching process with a power applied at one electrode in a range of about 150W to about 300W for generating a field using a plasma sources containing a perfluorinated chemical and a partially fluorinated chemical supplied at a gas flow ratio of larger than 1 at a temperature range of about -50°C to about 50°C.

**Claim 21 (previously presented)** The patterning method of claim 20, wherein the perfluorinated chemical comprises CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub>, and the partially fluorinated chemical comprises CHF<sub>3</sub> and CH<sub>2</sub>F<sub>2</sub>.

**Claim 22 (previously presented)** The patterning method of claim 20, wherein the plasma sources further comprises at least one inert gas selected from a group consisting of helium (He), neon (Ne), argon (Ar), krypton (Kr) and xenon (Xe).